An Inaugural Dissertation on Haemoptysis
For the Degree
of Doctor of Medicine

Addressed to the Medical Faculty

of the University
of Pennsylvania

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Henry Daingerfield Magill
of
Virginia

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To the Medical Professors
of the University
of Pennsylvania

This Crea=
=tise is humbly dedicated. as a feeble mark
of respect & gratitude; for the instructions
which he has received from them

By
The author

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Definition —

The term Hæmoptysis is derived from two greek words aima. blood & ptuo to spit, and is a name which is ap=plied to one of the important affections to which our fragile frames are subject. under it is arran=ged those extravasations of blood ~~which~~ from the throat, the trachea, and the Lungs. It therefore includes three species —

1st. Hæmorrhage from the Fauces —

2d. Hæmorrhage from the Trachea

3d. Hæmorrhage from the Lungs —

These distinctions derive their importance, not only from the influence they have over the medical treat=ment of the disease, but also from being connected with the cause of humanity; a knowledge of them frequently enabling the physician to remove can=kering care from the mind of his patient & restore him to health & hilarity

I shall commence with Hæmorrhage from the Fauces. This species consists in an oozing of blood from the space

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about the openings into the Larynx & Pharynx, & may be distinguished frequently, merely by opening the mouth of the patient, & inspecting this space, which is denominated the Fauces. It comes on generally without any premonitory signs, except perhaps a heat, & tension of the part; it is not accompanied as the two other species are, with a cough & tickling sensation about the glottis; from Hæmoptysis Pulmonalis it is particularly distinguished by the absence of dyspnoea, pain in the chest, & fever. Hæmorrhage from the Trachea is of more consequence than the preceding, though, not generally involving the destruction of health, it has been considered of but little consequence. Such contempt is perhaps not misplaced in the majority of cases, but we have the authority, of our distinguished professor of the practice of Medicine in the University of Pennsylvania, & also of others, for believing that it is sometimes succeeded by pulmonary consumption; the diseased state of the Trachea which occasions

the hæmorrhage seeming to extend itself to the Lungs.

It may be distinguished from Hæmoptysis Pulmonalis by being unaccompanied with some peculiar symptoms which denote an affection of the Lungs, such as a pain in some particular part of the Chest, also an oppression or weight & a sense of heat in the same situation. There is a sense of uneasiness about the Trachea which constitutes the most decisive diagnosis, as it directs us when it exists immediately to the seat of the disease.

Hæmoptysis Pulmonalis —

I have now arrived at the consideration of that extravasation which is the principal object of the present treatise, the two preceeding species scarcely claiming the notice of the medical practitioner when compared with it. There are few affections in the catalogue of diseases, which startle a patient & his relatives more than a discharge

of sanguineous fluid from the mouth, the first impression that is made is, that it proceeds from the Lungs, if this is not the case, it rests with the physician to calm the fears of, & often to restore to tranquillity & happiness a whole family.

Diagnosis. Hæmoptysis is to be discriminated by symptoms which precede the flow of blood. Those which accompany it. & those which succeed it.

The symptoms which precede are a pain in the chest a sense of weight in the Lungs, accompanied with dyspnœa, a tickling sensation about the glottis, a saltish taste in the mouth, & a hawking of viscid phlegm, together with all these there is generally a febrile excitement, displayed by the flushing of the cheeks, a sense of heat in the thorax & an irritated pulse.

The accompanying signs are the blood being brought up by coughing, mixed with air bubbles, which give it a frothy appearance, its flow or bright scarlet hue, & a difficulty of breathing often approaching

to suffocation, the fever also declines if any exist.

If the discharge is considerable in quantity, the effects upon the system will be sufficient to distinguish this from the other species of Haemoptysis. The prostration which succeeds it being much greater in proportion to the quantity of blood lost, arising no doubt from the importance of the organ in which the lesion has taken place.

The preceeding diagnosis will be sufficient also, to enable us to discern whether the bleeding is from the Stomach constituting Hematemesis, or from the Lungs, but to render it more perfect, it is necessary to take into consideration the symptoms of Hematemesis. In this disease the blood ejected is of a dark complexion, & grumous in consistence, it is intermixed also with the contents of the stomach, & is brought up by vomiting; those subject to Hematemesis are generally chlorotic females — or it is the consequence of some preceding disease such as inflammation of the Stomach

or of swallowing poisonous substances — a knowledge of all these circumstances will in most cases enable the practitioner to discriminate — Hæmoptysis from all other haemorrhages

Causes —

These may be divided into Remote or predisposing — Exciting & Proximate causes —

The Remote causes are all habits, & structural derangements, which tend to weaken the lungs, & render them incapable of supporting the immense quantity of blood which is constantly flowing through them. These habits are a sedentary & studious life, those employments which require a constant bending of the body forwards, such for instance as the weavers or the shoemakers trade, plethora, frequent exposure to changes of temperature, breathing an atmosphere very much heated, as in a stove room for instance, frequent attacks of Catarrh, & intemperate living. The structural derangements are tubercles, a contracted thorax —

* Note. I know an instance of Haemptysis, which I suspect very strongly, proceeds originally from a diseased state of the Tonsils. This has perhaps extended to the uvula, which being elongated irritates the Glottis to such a degree as to produce the haemorrhage. The person in whom it occurred has frequently been advised to submit to an operation for excision of the Tonsils.

and calcareous concretions. It is also produced by chronic diseases of the Liver, by Dyspepsia, - by drying up or stopping some accustomed - discharge such as an issue, a hæmorrhoidal flux long continued & Leucorrhœa; & by grief - & long continued mental anxiety &c -
Under the head of exciting causes, may be enu= =merated all imprudences, such as an exposure to a draught of cold air whilst perspiring freely, a debauch, violent exertions, such as lifting - heavy weights, straining to pull on a tight boot, running, violent motions of the mind acting upon a sanguine temperament, or a delicate & irritable constitution; a blow upon the thorax & arresting suddenly an accustomed hæmorrhage &c a rare= =fied atmosphere will also produce it. Travellers who have ascended high mountains informs us that that one of the disagreeable consequences atten= =ding such a step, is a gushing of blood from the mouth & nostrils. This took place after

they had ascended so high above the surface of the earth that a great diminution of the atmos= =phere existed. The explanation of this phenomenon is one which can be based upon no certain data or demonstrable facts & therefore the following remarks may be considered as a mere sporting of the imagination, uncontrolled by reason; & perhaps justly so.

It is a fact well established that the increase of vigour which we experience when exposed to a cold & dry atmosphere, is owing in some measure to the increase of atmospheric ~~of~~ atmospheric density, & consequently of atmos= =pheric pressure, our muscular fibres are by such an increase of density rendered more compact & of course invigorated. But on the contrary, that the languor & lassitude which we experience on a warm summer days is owing principally to an opposite state of the atmosphere. We may reasonably consider

the vessels of exposed surfaces as partaking of the same invigoration & of the same relaxation under these opposite conditions of the air. The conclusion to be drawn from the foregoing remarks is that the vessels of those surfaces which may be considered external, as they are exposed to the influence of the atmosphere are supported & their strength increased in proportion to the density of this Element: this is proved by the additional power which the blood vessels acquire during cold weather. That on the contrary they experience a diminution of strength, when the density of the air is diminished; this is evinced by the relaxation & debility they are subject to during warm weather. The effects of the rarefied state of the air upon the top of the Alps & Andes are of course the same as when this Element is rarefied by heat only differing in degree. The strength of the vascular portions of the Lungs, the Mouth, & Nose, is therefore diminished in these high regions: in consequence of this the blood does not circulate through these organs

with its former rapidity, congestion takes place, & the blood relieves the overloaded vessels by forcing its way through the weakened & flattened Exhalents.
But there are other causes which from their ex=
=tensive applications, & peculiarity of action — deserve to be considered alone. These are Heat & Cold. It seems somewhat singular that prin=
=ciples so directly opposite, should produce ul=
=timately effects so similar, but this is easily reconciled to reason when we examine the nature of their operation. Heat when applied in a con=
=siderable degree, produces first a stimulating impression upon the nerves, an increased activity of the circulation succeeds, the acceleration of the blood enfeebles every part of the system. This enervation is particularly experienced in the Lungs inasmuch as its delicate vessels — have the blood determined towards them — in a much greater quantity in a given time than formerly; the consequence of this increased

force is loss of tone, congestion ensues & hæmorrhage succeeds, being produced by this congestion.

It has been supposed that heat acts by rarefying the blood. There can be very little doubt, that it owes its effects in some measure to the diminution of density which the air sustains when subject to its action; but the idea that its operation is owing to a rarefaction of the blood is disproved by the experiments of Sauvages & Haller. These physiologists enclosed a portion of blood in a thermometrical tube & found that at the temperature of boiling water it did not expand $\frac{1}{200}$th part of its bulk. I am therefore inclined to adopt the opinion of the celebrated Dr Parr that heat acts by producing a relaxation of solids & diminishing resistance.

The impression of cold is directly opposite to that of heat, but its ultimate effects are precisely similar. When it is applied to the body it produces at first a centripetal determination of blood

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from the surface to the central vessels, these vessels are by this slightly engorged, the lungs of course partaking of this engorgement; it operates also immediately upon the mucous lining of these viscera, especially when it is combined with moisture & lessens the sensibility of the exhalents or in other terms relaxes & debilitates them, rendering them in this manner less able to resist the tendency which the blood has to force its way out of the engorged vessels.

The Proximate cause of Hæmoptysis is involved in considerable obscurity; an investigation which has for its object the removal of this obscurity being dependent mainly upon mere conjectures leaves the subject in a state of doubt & uncertainty —

Authors enumerate four proximate causes 1st Rexis or Rupture 2d Diapedesis or transudation 3d Diabrosis or erosion & 4th anastomosis.

That doctrine which inculcates that Rexis and

& Erosion are the most frequent causes of hæmorrhage
was for a long time almost universally promulgated,
& an objection to it was considered as scepticism
unworthy of refutation. But more recent times
have seen the establishment of the opinion which
was so ably advocated by Bichat & which is taught
by the able physician who occupies the Chair
of the Institutes & Practice of Medicine in the
University of Pennsylvania to his pupils —
Bichat asserts that in no instance of spontaneous
hæmorrhage could he discover upon dissection —
the slightest appearance of Erosion, although he
macerated & washed the surfaces with the —
greatest care, & employed a Microscope in ex=
=mining them. 2d that in squeezing the mucous
surface of the uterus in women who had died
during menstruation he pressed out a number
of small drops of blood which manifestly
came from the mouths of the Exhalants —
3d that hæmorrhage sometimes takes place

from free surfaces where the exhalents are evi=
=dently in fault. This renders it probable that
the same thing occurs in mucous membranes.
4th. that if in active hæmorrhage we admit
of the probability of a rupture, how can we sup=
=pose it to take place in passive hæmorrhage,
where the power of the vascular system is
almost destroyed. 5th. that it is difficult to
reconcile with the doctrine of rupture many
of the phenomena of hæmorrhage such as the
rapidity with which it has disappeared in
one part & reappeared in another.
I will now close these proofs with a few lines
from Lucan which are peculiarly striking &
admirably express the fact, that blood may
exude from every exhalent in the human
system; in cases of extreme debility & exhaus=
=tion.

Sanguis erant lacrymæ: quæcunque foramina novit
Humor, ab his largus manat cruor: ora redundant

Et patulæ nares: sudor rubet: omnia plenis
Membra fluunt venis: totum est pro vulnere corpus—

Periods at which hæmorrhagia Pulmonalis
is most apt to occur—

It is a remarkable fact & one which has very much engaged the attention of Physicians; that Hæmoptysis is very much inclined to make its appearance at that period of life, when a change from boyhood to manhood is taking place; which period is denominated Puberty. This change has been the cause of much speculation & has been a theme upon which the imagination has enjoyed untrammelled licence. This liability to Hæmoptysis is attributed to plethora; which very frequently exists at puberty. The frequent occurrence of a plethoric condition at this period has occasioned much ~~theorising~~ —, but I shall only mention one of the theories which have been advanced & this is Bichats.

This author observes, as the Lungs are connected in an intimate though unknown manner with

"the genital organs, they acquire with these a pre-
"-dominance at puberty, & partake of the increase
" of vital energy which they experience at this period.—
" It is at this time that pulmonary affections comme-
"-nce; as those causes which in an adult would
" produce gastric affections, now generate pulmonary
" diseases.

The imposing effect which every observation coming from one so distinguished produces gives to this opinion an authority which few will venture to object to, but I am induced to adopt it not by this effect, but on account of the applicability of his ideas in explaining the fact now under consideration.

That the genital organs have an intimate sympathetic connection with the thorax & its contents, is evinced by the effects which a development of these organs have upon the voice; the expansion & enlargement of the chest & lungs, at the period of this development; and by an enlargement of the mamma in females at puberty, but more particularly at a certain —

stage of pregnancy viz when the period of parturition approches.
It is probable therefore that this development excites the system to new & greatly invigorated motions. Of this invigoration the blood vessels must of course largely partake. The increased force with which they act may be often disproportionate to the strength of the delicate vessels of the lungs, which from their situation with regard to the rest of the circulating system, & the duties they perform, must sustain the greater portion of the burthen under these circumstances. The expansion which the chest is undergoing at this period invites also a greater proportion of blood to them than usual; these two causes combined debilitate the vessels of the lungs, congestion ensues, & lastly hæmorrhage.
With regard to the fact that Hæmoptysis is apt to occur periodically it is proper that I should here say something. Cullen in his First Lines observes that hæmorrhage sometimes takes place at stated periods. Dr Mear

notices the same fact but it is from Mosely that we derive the most decisive information upon this subject.

Among the many instances says the Dr which I have lately seen there is one which deserves to be recorded. A man in Burleigh Street has a cough for some time, which brought on Hæmoptysis. This continued for six weeks & finally degenerated into a regular monthly eruption of blood. He discharges about 8 ounces of blood every full moon.

He also relates the case of a Capt Richard Boyle of the 3d Regiment of Guards who was attacked in London on the 20th of January from straining to pull on a boot. He has many repetitions of the attack after recovering from the first. These attacks became at last so periodical as to return at or near the period of every full moon.

The cases tend to justify also, the opinion which Dr Mosely advances viz that the moon has considerable influence on hæmoptysis. We may account, it is true for some

of the repetitions by supposing that fortuitous circumstances combined to produce them at the period of full moon; but such a number of recurrences at this particular time cannot in this way be explained. There is another circumstance which may be related in this place.

It is a remarkable fact that Hæmoptysis almost invariably makes its first attack after the patient has retired to bed, in the dearly nights, when a perfect rest both of body & mind prevails. Three out of four cases which are known to myself took place at this time. One of these proved fatal by strangulation & another of them was the precursor of a disease, which I have good reason to suppose was inflammation of the Bronchia; this destroyed the patient by producing effusion.

Prognosis —

It is very difficult to form a prognosis with regard to Hæmoptysis, as the more material circumstances which would afford a criterion, do not present themselves generally untill some time after its occurrence

The mere hæmorrhage very rarely destroys, though this is occasionally the event of it. The physician cannot in most cases form a prognosis from the first hæmorrhage for allthough circumstances may be favourable at this time, yet unforseen occurrences frequently destroy our best prospects: & vice versa. The following considerations however may determine our opinion. 1st if the patient has an hereditary predisposition to Phthisis pulmonalis; a scrofulous diathesis, evinced by a fair complexion, thick lips, mild blue eyes, & light complexion & hair; or a defective chest, the prognosis is very unfavorable. If the hæmorrhage returns frequently & is succeeded by a cough with a spitting of purulent matter & a constant pain in some part of the Lungs; we may determine that Phthisis Pulmonalis has succeeded. If the disease occurs in an emaciated & cachectic person, the prognosis is very unfavorable; the hæmorrhage itself may in this case be fatal. The more favourable prognosis is the disappearance of the cough, pain, & dyspnœa. The discharge being

produced by some entirely accidental cause. Its being vicarious & occurring in a constitution which we have every reason to believe is tainted by a scrofulous diathesis, the habits of the patient being good. All these circumstances taken into consideration will generally make us to judge of the prospects of our patient.

Treatment

This resolves itself into two divisions — viz into —
1st the treatment proper during the hæmorrhage —
2d that which is required after it has been arres=
=ted

When we are called to see a patient who is attacked
with hæmoptysis, if this is at all violent we find the
blood flowing from his mouth, his respiration obstructed, &
his pulse greatly accelerated; he complains also
of something which feels like a load upon his lungs.
If he has retired to rest & the extravasation occurs whilst
he is asleep which it most generally does, he is
=aroused by pain & oppression in the thorax & expe=
=rience also a tickling sensation about the fauces.
This brings on a coughing, by which the blood is discha=
=ged

The attack is often strictly febrile in its nature.
It is ushered in by a chill, accompanied with cold
extremities, lassitude, & debility. This is succeeded
by a fever together with its effects upon the system
generally. The paroxysm is complicated by the effusion

of blood, which may be considered as bearing the same relationship to the preceding stages as the sweating at the close of an intermittent paroxysm.
If we see the patient before the extravasation has taken place & from the symptoms have reason to suspect a determination to the chest, the obvious indication is to bleed copiously. It is necessary also if the local symptoms are very threatning, to apply cups to the chest, which are to be repeated if required, or a blister substituted. The bowels should be attended to, & kept freely open by saline cathartics. If the discharge of blood has occurred before we arrive, our first step must be to arrest it. The most important remedy under such circumstances is bleeding from the arm.
The celebrated Heberden from a prudential considerations — doubted the propriety of the practice not being able to conceive how opening a drain, whilst one already exists should arrest this last. But the fact is explained in the following extract from Dr Chapin's Lectures. By opening a vein in the arm (says the Dr) we invite an afflux of blood to that part, & on the principle of revulsion check

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the hemorrhage in any other part; he concludes with observing that the solution of the problem is perfectly immaterial; the fact being almost universally concess.
In the more violent cases it is essential that the bleeding be copious; the tendency which the blood has to the lungs not being overcome by any other than a more powerfull attraction in in another direction. Small bleedings says Dr. Chapm only serve to harrass + debilitate the patient without contributing to the cure; My practice (he continues) in cases when it is necessary to afford immediate relief is to take at once from a large orifice so much blood as to produce a permanent impression. Common salt may be used advantageously at this time. The mode of its action is very obscure, but it operates probably by stimulating the Fauces + Pharynx + producing a determination towards these parts. The mode of using it is a matter of some importance, as its effects are influenced by it. It is to - used as follows a teaspoonfull of the dry salt is to be - taken into the mouth in small portions, dissolved upon the tongue + afterwards swallowed —

vesicating applications to the chest, are highly recommended, indeed there is very little doubt that they are important auxiliaries in arresting the flow of sanguineous fluid — "as a blister (says Dr Parr) will often prevent, and "will sometimes lessen Pulmonary hæmorrhage — is "indeed a very unequivocal remedy. Practitioners disagree very much as to part to which they ought to be applied, some contending that the extremities are the proper situations for their application; others, they will be of little utility unless placed upon the chest. This latter opinion is the one which has been generally adopted. Indeed it may be laid down as a general rule that in all local diseases where blisters are indicated, we should apply them as near to the seat of the disease as possible. It is only in general affections that we can apply them with propriety to the extremities.

Cold applications to the Thorax have also been highly recommended, but I should doubt the propriety of

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their use, except in urgent cases. Cold is very injurious to diseased lungs, & therefore should be used sparingly & cautiously. It has indeed been advised to wrap the whole body in a sheet wet with cold water in extreme cases. Such bold practice is perhaps justifiable under these circumstances but only under these circumstances.

Many years ago Saccharum Saturni bore a high reputation in this complaint & was generally used, it being presumed that its astringent effect when taken into the stomach would extend to the lungs. But owing to the reports of Sir Geo. Baker, it was afterwards viewed as a dearly poison & its use abandoned. The late Dr Burton by stating to the public the result of his experience & giving his distinguished authority with regard to the propriety of its use succeeded in dissipating these idle notions in this country & fully established ~~their~~ its efficacy.

But in consequence of this its use has become perhaps too indiscriminate; Physicians employing it upon all occasions

& frequently without any attention to the condition of the system. Bleeding should always precede its use in an excited condition of the vascular system. Dr. Chapm. observes upon this subject that if the force of the arteries be not previously reduced, Lead will not only be inefficacious but even injurious; nor will a single bleeding answer it is the common practice to bleed as long as any arterial excitement exists. After this has been reduced Lead may be administered. It cannot be considered applicable as long as the bleeding is profuse. It would indeed, be idle to use it under such circumstances. Saccharum Saturni may be taken in considerable doses without injury. a drachm of it has been swallowed by mistake without producing any other effect than an active purging.

Alum has been much prescribed & considering its powerfull astringent properties, one would suppose a priori that is a very valuable remedy. But I have been taught to put but little confidence in its powers in this species of hæmorrhage. It is certainly not

applicable to profuse haemorrhage & it is therefore if ever at all only to be given in the milder cases; or to more severe ones after the bleeding has been considerably diminished by more active remedies.

For a long course of time Digitalis enjoyed great repute as a remedy in this affection. But its efficacy is not now much depended upon. Its effects are obtained in most cases either by giving a considerable quantity in small doses frequently repeated or by a large dose administered at once. In the first case it requires a considerable time to put the system under its influence; & in the latter we may destroy our patient. It is therefore not to be used in an affection which requires prompt relief. The opinion which prevails, that it may be used as a substitute for the Lancet is injurious. There is nothing in fact which can be substituted for this instrument when reduction of the arterial force is required. If administered it is to be given in small doses.

Nitre has been recommended with a view to its refrigerant effects. By Dr Parr it is said to be most effectual when

swallows in cold water whilst dissolving. Ten grains may be given (says he) in this manner in urgent cases.

I have now arrived at the consideration of a class of remedies, about which there is considerable dispute viz Emetics. The efficacy of these medicines depends principally I suspect upon the nature of the case in which they are used. They cannot be considered as proper in the generality of profuse bleedings from the Lungs. In such they ought only to be used as dernier resorts. But when the quantity of blood is but small in quantity and seems to proceed from tubercles or merely from the Bronchial Arteries, they may be administered with great advantage. Their operation in such cases tends to restore the equilibrium of the circulation, by determining to the surface, relaxing the emunctories & promoting a free perspiration. Their efficacy in all cases was strongly advocated by Dr B. Robinson of Dublin. Cullen was induced to try them, but conceiving that they greatly increased the discharge in one instance, ~~greatly~~ endangering the life of the patient, he laid them aside & proscribed them entirely.

yet although Emetic Emetic Tartar is inadmissible in the more violent cases in doses large enough to vomit; it is certainly very usefull when given so as to procure its nau=
=seating effects.

By Dr Mosely the vitriolic solution has been strongly recommended. In this practice he is supported by Dr=
= Barton, who thought the remedy very efficacious.

I have been taught to consider Ipecacuana as an article in which confidence is to be placed. It is to be administered in small doses so as to produce nausea which should be kept up for some time.

The mineral acids have also been used. The best of them is the sulphuric acid, given in the dose of 10 or 20 drops with a proper proportion of water, every hour. Its bene=
=ficial effects may be derived from the Elixir Vitriol.

Most of the Narcotics have also been used with a view to procure their sedative effects. But Opium may be made to supply the place of all the rest of this class. The utility of this medicine in many instances is too well attested to admit of a doubt. As it is evidently a stimulant

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it might very properly be considered as contraindicated, did not experience bear testimony of its salutary operation. Dr Chapman remarks, that in speculating upon this article, we should bear in mind the peculiarity of its effects. "When I have directed Opium (continues He) it has generally been in cases where great pulmonary irritation exists, accompanied with a cough. No one will dispute the propriety of using Opium in such cases, though there may be great arterial excitement at the time". Irritation of the lungs & more particularly the cough has the effect of continuing the hæmorrhage & by removing these we arrest it.

There are some general indications with regard to the management of the patient which must be answered. I shall make an extract of these from Dr Chapman's Lecture on Hæmoptysis.

1st the moment you are consulted in a case of this nature, you are to direct that your patient be put in a state of complete rest, with his shoulders somewhat elevated. 2d the room should be kept cool & well ventilated.

This is a matter of great importance. It is also proper that company be excluded, & the patient must not even be suffered to enquire into any event that may occur, the mere asking a question has been known to excite a return of the hemorrhage. 3d the diet should consist of small portions of demulcent drinks. It is especially necessary that the stomach should not be overloaded with aliment or drink.

4th. It is a matter of considerable importance that the bowels be kept in a soluble state. But no great advantage would result from active purging. In administering purgatives we must be careful not to use magnesia, as it is very apt to excite coughing & thus produce a recurrence of the bleeding.

Most of the bleedings from the lungs to which we are called, are of an active nature. But we occasionally meet with cases of an opposite kind, requiring a treatment very different. These are denominated passive hemorrhages. All such cases are to be treated alike whether they are primarily or secondarily of a passive nature. Tonics are of course to be freely used. Of these the Bark

is certainly the best. Dr. Chapm. observes that the best mode of exhibiting this tonic is to combine it with some chaly=
=beate. Of these he prefers the muriated tincture of Iron or the green sulphate.

The vegetable astringents are of so little consequence that it is not necessary to dwell on their administration.

I have now finished the consideration of the means to be employed during the hemorrhage. I am next to speak of those proper after this has been arrested, and although there are much fewer in number & more simple in their character; yet they are perhaps of more importance than the preceding.

The object of these remedies is to prevent a recurrence of the disease & consequently, to arrest this in its advance towards pulmonary consumption. As a sanguine & irritable state of the system is very inimical to our efforts. We should therefore enforce the antiphlogistic regimen in all its vigour & induce our patient to adhere to it most rigidly. The best efforts of the physician & the most unremitting attention on

his part is frequently rendered unavailing by a single imprudence on the part of the patient. In a short time after the attack has occurred we find him to regain his confidence & spirits, & under these circumstances believing that he is perfectly cured, he is very apt secretly to depart from our regulations. We should guard him in the most impressive manner from this fatal security, & convince him that his life depends upon his strictly complying with our directions with regard to diet, clothing &c. The diet should consist of the lightest articles & the patient must not even be suffered to load his stomach with these. Animal food must for some time be totally abandoned. He should wear flannel next the skin. and his bowels should be kept open. He should particularly avoid exposure to the night air. It is important that he should exercise on horseback but must not carry it to such an extent as to fatigue himself. His ride must be commenced in the morning after sunrise & in the evening before sunset so as to avoid both the oppressive heat

of the Sun, & the damp air of twilight. He must avoid a hot fire or a room where the air is very much rarefied by heat. In fine nature must not be obstructed in her restorative operations, by any improper acts; as his safety depends entirely upon a due regard to the condition of his system, & a forbearance to abide by the treatment this condition calls for.

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